



CERT Educational Series

Light and Waves Module

Student Lab Sheet

Name _____ Date: _____

Experiment 1: Making a Wave

Vocabulary: wavelength, trough, crest, amplitude

Write down two observations you and your partner noticed as you used the string to produce waves. Think about what is happening and what is NOT happening when you move the string.

Observation #1

Observation #2

Sketch a picture of the waves you and your partner produced and label with the vocabulary words.

A large, empty rectangular box with a black border, intended for students to draw and label their observations of waves.

Experiment 2: Light Meter Exploration

Light Meter reading (Lux)	Describe Surroundings

Surroundings: where is the meter?; distance above floor, below ceiling, near windows (with or without shades)?; bright or cloudy day?; lights in room on or off?; type of light fixtures?; etc.

Observation: What happened to the lux measurement as you moved the sensor closer to the overhead light?

Observation: How do your LUX meter readings compare to the recommended illumination for areas/activities that you measured? (see reference charts distributed by teacher)

Conclusion: Why did the lux measurement change?

Experiment 3: What happens to light as it travels from a source?

Volcabulary: Reflected Light, Refracted Light, Absorbed Light, Scattered Light

Light Meter Readings (Lux)				
No Paper	Aluminum Foil	White Paper	Black Paper	Blue Cellophane

Observation: Use the vocabulary words to describe what happened during each of the lux measurements:

No Paper

Aluminum Foil

White Paper

Black Paper

Blue Cellophane Paper

Experiment #4: Continuous Emission Spectra

Observation: Record what you saw when using “rainbow glasses” to look at lamp light.

Did you see dark spaces with lines of light in your view?

What is the range of wavelengths for the visible spectrum?

Which has a shorter wavelength: radio waves or visible light?

Which has a shorter wavelength: gamma waves or visible light?

Experiment #5: Identifying Elements using Spectrum

Unknown Spectrum Tube #1: Which spectrum best matches from bright-line spectra chart? What is the element?

Unknown Spectrum Tube #2: Which spectrum best matches from bright-line spectra chart? What is the element?

Unknown Spectrum Tube #3: Which spectrum best matches from bright-line spectra chart? What is the element?